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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,595	02/05/2004	George Bokisa	TASKP104US	5184

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EXAMINER	
WONG, EDNA	

ART UNIT	PAPER NUMBER
1753	

DATE MAILED: 05/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/772,595	BOKISA ET AL.	
	Examiner	Art Unit	
	Edna Wong	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-23 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-23 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *February 5, 2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Specification

The disclosure is objected to because of the following informalities:

page 4, line 2, the word "catholtye" should be amended to the word -- catholyte --

page 6, line 17, the "," (comma) [third occurrence] should be amended to a -- ; -- (semicolon).

page 6, line 28, the word "dimethylsufide" should be amended to the word -- dimethylsulfide --.

page 7, line 4, the word "triethylamin" should be amended to the word -- trimethylamine --.

page 9, line 15, the word "sullfinates" should be amended to the word -- sulfinates --.

page 14, line 18, "3-(2-propynoxy)-2-propenoic" should be amended to -- 3-(2-propynyloxy)-2-propenoic --.

page 14, line 19, the word "N-hetercyclics" should be amended to the word -- heterocyclics --.

page 14, line 23, "gamma-propynoxy" (both occurrences) should be amended to -- gamma-propynyloxy --.

Appropriate correction is required.

Claim Objections

Claims **2-5, 10-12, 15-16 and 19-21** are objected to because of the following informalities:

Claim 2

line 2, it is suggested that the word -- metals -- be inserted after the word "two".

Claim 3

line 6, the word "N-hetercyclics" should be amended to the word -- heterocyclics --.

Claim 4

line 3, the word "sullfinates" should be amended to the word -- sulfinates --.

Claim 5

line 2, the claim contains two (2) periods. The "." (period) after the unit °C should be deleted.

Claim 10

line 2, the claim contains two (2) periods. The "." (period) after the unit °C should be deleted.

Claim 11

line 3, the word "sullfinates" should be amended to the word -- sulfinates --.

Claim 12

line 6, the word "N-hetercyclics" should be amended to the word -- heterocyclics --.

Claim 15

line 2, the word "N-hetercyclics" should be amended to the word -- heterocyclics --.

Claim 16

line 2, it is suggested that the word -- metals -- be inserted after the word "two".

Claim 19

line 2, it is suggested that the word -- metals -- be inserted after the word "two".

Claim 20

line 5, the word "N-hetercyclics" should be amended to the word -- heterocyclics --.

Claim 21

line 3, the word "sullfinates" should be amended to the word -- sulfinates --.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

Claims **3-4, 8, 11-15 and 20-21** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3

line 1, the word "comprises" should be amended to the words -- further comprising -- because it appears that the at least one organic brightener selected form the group is further limiting the electroplating bath already comprising the elements recited in claim 1. However, it is unclear if it is.

lines 2-6, it appears that the "at least one organic brightener" is the same as the organic brighteners recited in claim 1, lines 4-5. However, it is unclear if it is.

If it is, then it is suggested that the words "wherein the electroplating bath comprises at least one organic brightener" be amended to the words -- wherein the organic brighteners are --.

Claim 4

line 1, the word "comprises" should be amended to the words -- further comprising -- because it appears that the at least one sulfur containing brightener selected form the group is further limiting the electroplating bath already comprising the elements recited in claim 1. However, it is unclear if it is.

lines 2-4, it appears that the "at least one sulfur containing brightener" is the same as the sulfur containing brighteners recited in claim 1, line 5. However, it is unclear if it is.

If it is, then it is suggested that the words "wherein the electroplating bath comprises at least one sulfur containing brightener" be amended to the words -- wherein the sulfur containing brighteners are --.

Claim 8

lines 2-3, it appears that "at least two alloy metals" are the same as those recited in claim 1, line 4. However, it is unclear if they are.

If they are, then it is suggested that the word -- the -- be inserted after the word

"and".

Claim 11

line 1, the word "comprises" should be amended to the words -- further comprising -- because it appears that the at least one sulfur containing brightener selected form the group is further limiting the electroplating bath already comprising the elements recited in claim 9. However, it is unclear if it is.

lines 2-4, it appears that the "at least one sulfur containing brightener" is the same as the sulfur containing brighteners recited in claim 9, line 8. However, it is unclear if it is.

If it is, then it is suggested that the words "wherein the electroplating bath comprises at least one sulfur containing brightener" be amended to the words -- wherein the sulfur containing brighteners are --.

Claim 12

line 1, the word "comprises" should be amended to the words -- further comprising -- because it appears that the at least one organic brightener selected form the group is further limiting the electroplating bath already comprising the elements recited in claim 9. However, it is unclear if it is.

lines 2-6, it appears that the "at least one organic brightener" is the same as the organic brighteners recited in claim 9, line 8. However, it is unclear if it is.

If it is, then it is suggested that the words "wherein the electroplating bath comprises at least one organic brightener" be amended to the words -- wherein the organic brighteners are --.

Claim 13

line 1, the word "comprises" should be amended to the words -- further comprising -- because it appears that the sulfo-betaine brightener is further limiting the electroplating bath already comprising the elements recited in claim 9. However, it is unclear if it is.

lines 1-2, it appears that "a sulfo-betaine brightener" is further limiting the sulfur containing brighteners recited in claim 9, line 8. However, it is unclear if it is.

Claim 14

line 1, the word "comprises" should be amended to the words -- further comprising -- because it appears that the acetylenic brightener is further limiting the electroplating bath already comprising the elements recited in claim 9. However, it is unclear if it is.

lines 1-2, it appears that "an acetylenic brightener" is further limiting the organic brighteners recited in claim 9, line 8. However, it is unclear if it is.

Claim 15

line 1, the word "comprises" should be amended to the words -- further comprising -- because it appears that the N-hetercyclic brightener is further limiting the electroplating bath already comprising the elements recited in claim 9. However, it is unclear if it is.

lines 1-2, it appears that "an N-hetercyclic brightener" is further limiting the organic brighteners recited in claim 9, line 8. However, it is unclear if it is.

Claim 20

lines 1-2, it appears that the "at least one of the two organic brighteners" is the same as the organic brighteners recited in claim 18, line 6. However, it is unclear if it is.

If it is, then it is suggested that the words "wherein at least one of the two brighteners is" be amended to the words -- wherein the organic brighteners are --.

Claim 21

lines 1-2, it appears that the "at least one of the two organic brighteners" is the same as the sulfur containing brighteners recited in claim 18, lines 5-6. However, it is

unclear if it is.

If it is, then it is suggested that the words "wherein at least one of the two brighteners is" be amended to the words -- wherein the sulfur containing brighteners are --.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims **1-23** are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-22 of copending Application No. 10/772,473. Although the conflicting claims are not identical, they are not patentably distinct from each other because the subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common

subject matter, as follows:

A method of electroplating an alloy comprising nickel and cobalt comprising the steps of:

(a) providing an electroplating bath comprising an anode, a cathode, water, ionic nickel, ionic cobalt, ionic boron, and at least one brightener selected from the group consisting of sulfur containing brighteners and organic brighteners; and

(b) applying a current to the electroplating bath whereby the alloy comprising nickel, cobalt and boron forms on the cathode.

The independent claims of the present invention recites similar limitations, either alone or in combination with their dependent claims, as that of the claims of the copending application wherein the claims of the present invention are encompassed by the claim of the copending application. Therefore, the claims would have been obvious variants over each other.

The limitation of "at least two ionic alloy metals" claimed in the instant application (claims 1, 9 and 18) includes ionic boron (claims 2, 16 and 19) as recited in the claims of the copending application (claims 1, 9 and 16), and the electroplating bath of the copending application is open to a fourth alloying metal.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims **1-4** are rejected under 35 U.S.C. 102(b) as being anticipated by **JP 10-245693** ('693).

JP '693 teaches a method of electroplating a quaternary alloy comprising nickel and cobalt, comprising:

(a) providing an electroplating bath comprising:

(i) an anode;

(ii) a cathode (= electronic part);

(iii) water (= from *water*-soluble salt);

(iv) ionic nickel (= from a nickel salt);

(v) ionic cobalt (= from a water-soluble salt of cobalt);

(vi) at least two ionic alloy metals (= from a water-soluble salt of B, Co, Cu, Fe, Mn, P, Sn and/or Zn); and

(vii) at least one brightener selected from the group consisting of sulfur containing brighteners and organic brighteners (= a heterocyclic quaternary ammonium compound); and

(b) applying a current (page 4, Table, "A/dm^2") to the electroplating bath whereby

the quaternary alloy comprising nickel, cobalt, and at least two ally metals forms on the cathode (abstract; and page 1, [0001] and [0007]).

The at least two ionic alloy metals comprise at least two metals selected from the group consisting of B, Cu, Fe, Mn, Sn and Zn in ionic form (abstract; and page 1, [0007]).

The organic brighteners are selected from the group consisting of aldehydes and N-heterocyclics (abstract; page 1, [0007]; and page 1, claim 1).

The sulfur containing brighteners are selected from the group consisting of sulfonic acids and aromatic sulfonates (abstract; page 1, [0007]; and page 1, claim 1).

The electroplating bath has a pH from about 2 to about 6 (= pH 3-10) [abstract; and page 1, [0007]] and a temperature from about 10°C to about 90°C (page 3, Table, "°C").

The electroplating bath comprises from about 0.001% to about 5% by weight of at least one brightener (= 0.01 g/l to 1 g/l) [page 2, [0015]].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

I. Claims **5-8** are rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 10-245693** ('693) as applied to claims 1-4 above, and further in view of **Hui** (US Patent No. 6,372,118 B2).

JP '693 is as applied above and incorporated herein.

JP '693 does not teach applying a current density of about 1 ASF or more and about 500 ASF or less to the electroplating bath.

However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of JP '693 by applying a current density of about 1 ASF or more and about 500 ASF or less to the electroplating bath because the current density is a result-effective variable and one skilled in the art has the skill to calculate the current density that would determine the success of the desired reaction to occur, absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(b).

JP '693 teaches current densities of 0.1 A/dm^2, 1.0 A/dm^2 and 2.0 A/dm^2 (page 4, Table, "A/dm^2").

As to wherein the electroplating bath comprises about 10 g/l or more and about 150 g/l or more of ionic nickel, about 0.5 g/l or more and about 70 g/l or less or ionic cobalt, about 0.01 g/l or more and about 20 g/l or less of each of the ionic alloy metals, the concentrations of the ionic metals are result-effective variables and one skilled in the

art has the skill to calculate the concentrations that would determine the success of the desired reaction to occur, absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(b).

JP '693 teaches different concentrations of the ionic metals in the electroplating baths (page 3, Table).

As to wherein the anode comprises at least one of nickel, cobalt, at least one alloy metal, iridium oxide, platinum, titanium, graphite, carbon, and platinum-titanium, it is conventional in the art to have used an anode of the same material that is being electrodeposited. Thus, if nickel and cobalt are being electrodeposited, then a nickel anode and/or a cobalt anode would have been obvious to use.

Furthermore, JP '693 teaches electroplating a Ni-Fe-Co alloy (abstract; and page 1, [0007]), and Hui teaches a method of electroplating a Ni-Fe-Co alloy using nickel and iron anodes (col. 4, line 65 to col. 5, line 3).

Thus, it would have been obvious to one having ordinary skill in the art to use nickel and iron anodes to electroplate a Ni-Fe-Co alloy.

It has been held that the selection of a known material based on its suitability for its intended use supports a prima facie obviousness determination. See MPEP § 2144.06 and § 2144.07.

As to wherein the quaternary alloy comprises about 2% by weight or less of

components other than nickel, cobalt, and at least two alloy metals, the concentration of components other than nickel, cobalt, and at least two alloy metals is a result-effective variable and one skilled in the art has the skill to calculate the concentration that would determine the success of the desired reaction to occur, absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(b).

JP '693 teaches different concentrations of the ionic metals in the electroplating baths (page 3, Table).

II. Claims **9-13 and 15-17** are rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 10-245693** ('693).

JP '693 is as applied above and incorporated herein.

JP '693 also teaches wherein the electroplating bath comprises a sulfo-betaine brightener (abstract; page 1, [0007]; and page 1, claim 1).

The electroplating bath comprises an N-heterocyclic brightener (abstract; page 1, [0007]; and page 1, claim 1).

The at least two ionic alloy metals comprise iron and boron in ionic form (abstract; page 1, [0007]).

JP '693 does not teach about 40 g/l or more and about 100 g/l or more of ionic nickel, about 1 g/l or more and about 30 g/l or less or ionic cobalt, about 0.05 g/l or more

and about 10 g/l or less of each of the ionic alloy metals.

However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of JP '693 with about 40 g/l or more and about 100 g/l or more of ionic nickel, about 1 g/l or more and about 30 g/l or less or ionic cobalt, about 0.05 g/l or more and about 10 g/l or less of each of the ionic alloy metals because the concentrations of the ionic metals are result-effective variables and one skilled in the art has the skill to calculate the concentrations that would determine the success of the desired reaction to occur, absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(b).

JP '693 teaches different concentrations of the ionic metals in the electroplating baths (page 3, Table).

As to a current density of about 10 ASF or more and about 200 ASF or less is applied to the electroplating bath, the current density is a result-effective variable and one skilled in the art has the skill to calculate the current density that would determine the success of the desired reaction to occur, absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(b).

JP '693 teaches current densities of 0.1 A/dm^2, 1.0 A/dm^2 and 2.0 A/dm^2 (page 4, Table, "A/dm^2").

III. Claim **14** is rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 10-245693** ('693) as applied to claims 9-13 and 15-17 above, and further in view of **Hui** (US Patent No. 6,372,118 B2).

JP '693 is as applied above and incorporated herein.

JP '693 does not teach wherein the electroplating bath comprises an acetylenic brightener.

However, Hui teaches a method of electroplating a Ni-Fe-Co alloy wherein the plating solution includes from about 2 to about 50 ml/L hardeners. Suitable hardening agents include 2-butyne-1,4-disulfonic acid (col. 4, lines 19-28).

Thus, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of JP '693 with wherein the electroplating bath comprises an acetylenic brightener because JP '693 teaches electroplating a Ni-Fe-Co alloy (abstract; and page 1, [0007]). A hardener would had effectively made grain size more fine and slowed down the rate at which the nickel, iron and cobalt ions reach the substrate. This thereby provides a more uniform deposition of the coating on the substrate as taught by Hui (col. 4, lines 19-28).

The reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose or to solve a different problem. It is not

necessary that the prior art suggest the combination to achieve the same advantage or result discovered by the Applicants. *In re Linter* 458 F 2d 1013, 173 USPQ 560 (CCPA 1972); *In re Dillon* 919 F 2d 688, 16 USPQ 2d 1897 (Fed. Cir. 1990), cert. denied, 500 USPQ 904 (1991); *In re Linter* 458 F 2d 1013, 173 USPQ 560 (CCPA 1972); *In re Dillon* 919 F 2d 688, 16 USPQ 2d 1897 (Fed. Cir. 1990), cert. denied, 500 USPQ 904 (1991) and MPEP § 2144.

IV. Claims **18-23** are rejected under 35 U.S.C. 103(a) as being unpatentable over **JP 10-245693** ('693).

JP '693 is as applied above and incorporated herein.

JP '693 does not teach at least two brighteners selected from the group consisting of sulfur containing brighteners and organic brighteners.

However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of JP '693 with at least two brightener selected from the group consisting of sulfur containing brighteners and organic brighteners because using two brighteners is merely a matter of choice because the action solves no stated problems and produces no unexpected results, absent evidence to the contrary.

Furthermore, it is conventional in the electroplating art to add more than one

additive to the electroplating bath, e.g., more than one brightener, leveler, surfactant, buffering agent, etc.

As to wherein the electroplating bath further comprises at least one conductivity salt, this would have been would have been well within the skill of the artisan because the total conductivity of a given solution would be the sum of the mobilities of the ions it contains. The mobilities of individual ions differ considerably, so that in any solution it is likely that more current is carried by the cation than by the ion, or vice versa.

As to wherein the conductivity salt is selected from the group consisting of boric acid, sodium sulfate, sodium chloride, potassium sulfate, and potassium chloride, these are conventional conductivity salts in the electroplating art. It has been held that the selection of a known material based on its suitability for its intended use supports a prima facie obviousness determination. See MPEP § 2144.06 and § 2144.07.

Citations

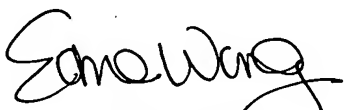
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Martin et al. (US Patent No. 4,717,458) is cited to teach a process for electrodepositing Zn-Ni-Co-Fe from an aqueous electrolyte comprising an AABB polyamide brightener.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Edna Wong
Primary Examiner
Art Unit 1753

EW
May 18, 2005